SEQUENCE LISTING

<110> Birkett, Ashley J.

<120> IMMUNOGENIC HBc CHIMER PARTICLES STABILIZED WITH AN N-TERMINAL CYSTEINE

<130> ICC-130.0 4564/85124

<140> NOT YET ASSIGNED

<141> 2002-02-21

<150> 09/930,915

<151> 2001-08-15

<160> 290

<170> PatentIn version 3.1

<210> 1

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 1

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
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<211> 185

<212> PRT

<213> Hepatitis B virus

<400> 2

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
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Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu

50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Gln Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
145 150 155 160

Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
165 170 175

Arg Ser Gln Ser Arg Glu Ser Gln Cys
180 185

<210> 3

<211> 185

<212> PRT

<213> Hepatitis B virus

<400> 3

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
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Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Val Gly Leu Lys
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
145 150 155 160

Arg Thr Pro Ser Pro Arg Arg Arg Pro Ser Gln Ser Pro Arg Arg Arg
165 170 175

Arg Ser Gln Ser Arg Glu Ser Gln Cys
180 185

<210> 4

<211> 183

<212> PRT

<213> Hepatitis B virus

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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
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Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
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<210> 5

<211> 183

<212> PRT

<213> Marmota monax

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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu
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Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp
20 25 30

Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys
35 40 45

Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu
50 55 60

Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln
65 70 75 80

Val Arg Thr Ile Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys
85 90 95

Val Arg Gln Ser Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln
100 105 110

His Thr Val Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Ala Pro Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu His Thr Val Ile Arg Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser
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Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro
165 170 175

Arg Arg Arg Arg Ser Gln Cys
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<210> 6

<211> 217

<212> PRT

<213> Spermophilus variegatus

<400> 6

Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro
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Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp
20 25 30

Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe
35 40 45

Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala
50 55 60

Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro

65 70 75 80

His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr
85 90 95

Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg
100 105 110

Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln
115 120 125

Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gly His Thr Val
130 135 140

Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr
165 170 175

Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg
180 185 190

Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
195 200 205

Arg Ser Gln Ser Pro Ala Ser Asn Cys
210 215

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<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> plasmid pkk223

<400> 7
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<210> 8

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> plasmid pkk223

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<210> 9

<211> 15

<212> PRT

<213> Streptococcus pneumoniae

<400> 9

Lys Leu Glu Glu Leu Ser Asp Lys Ile Asp Glu Leu Asp Ala Glu
1 5 10 15

<210> 10

<211> 35

<212> PRT

<213> Streptococcus pneumoniae

<400> 10

Gln Lys Lys Tyr Asp Glu Asp Gln Lys Lys Thr Glu Glu Lys Ala Ala
1 5 10 15

Leu Glu Lys Ala Ala Ser Glu Glu Met Asp Lys Ala Val Ala Ala Val
20 25 30

Gln Gln Ala
35

<210> 11

<211> 27

<212> PRT

<213> Cryptosporidium parvum

<400> 11

Gln Asp Lys Pro Ala Asp Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu
1 5 10 15

Pro Ala Ala Gln Gln Asp Lys Pro Ala Asp Ala
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<210> 12

<211> 17

<212> PRT

<213> Human immunodeficiency virus

<400> 12

Arg Lys Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Ile Thr Lys
1 5 10 15

Asn

<210> 13

<211> 31

<212> PRT

<213> Foot-and-mouth disease virus

<400> 13

Tyr Asn Gly Glu Cys Arg Tyr Asn Arg Asn Ala Val Pro Asn Leu Arg
1 5 10 15

Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
20 25 30

<210> 14

<211> 10

<212> PRT

<213> Influenza A virus

<400> 14

Tyr Arg Asn Leu Leu Trp Leu Thr Glu Lys
1 5 10

<210> 15

<211> 23

<212> PRT

<213> Influenza A virus

<400> 15

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
1 5 10 15

Arg Cys Asn Gly Ser Ser Asp
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<210> 16

<211> 23

<212> PRT

<213> Influenza A virus

<400> 16

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
1 5 10 15

Arg Cys Asn Asp Ser Ser Asp
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<210> 17

<211> 21

<212> PRT

<213> Influenza A virus

<400> 17

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
1 5 10 15

Arg Ala Asn Asp Ser
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<210> 18

<211> 19

<212> PRT

<213> Influenza A virus

<400> 18

Glu Gln Gln Ser Ala Val Asp Ala Asp Asp Ser His Phe Val Ser Ile
1 5 10 15

Glu Leu Glu

<210> 19

<211> 34

<212> PRT

<213> Influenza A virus

<400> 19

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Ser Leu Leu Thr Glu
1 5 10 15

Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ser Arg Ser Asn Asp Ser
20 25 30

Ser Asp

<210> 20

<211> 23

<212> PRT

<213> Influenza A virus

<400> 20

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ser
1 5 10 15

Arg Cys Asn Asp Ser Ser Asp
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<210> 21

<211> 23

<212> PRT

<213> Influenza A virus

<400> 21

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
1 5 10 15

Arg Ser Asn Asp Ser Ser Asp
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<210> 22

<211> 23

<212> PRT

<213> Influenza A virus

<400> 22

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
1 5 10 15

Arg Ala Asn Asp Ser Ser Asp
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<210> 23

<211> 23

<212> PRT

<213> Influenza A virus

<400> 23

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
1 5 10 15

Arg Cys Asn Asp Ser Ser Asp
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<210> 24

<211> 24

<212> PRT

<213> Influenza A virus

<400> 24

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Cys Asn Asp Ser Ser Asp
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<210> 25

<211> 24

<212> PRT

<213> Influenza A virus

<400> 25

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Ser Arg Ser Asn Asp Ser Ser Asp
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<210> 26

<211> 35

<212> PRT

<213> Influenza A virus

<400> 26

Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1 5 10 15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
20 25 30

Trp Gly Ile
35

<210> 27

<211> 24

<212> PRT

<213> Influenza A virus

<400> 27

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Ala Arg Ala Asn Asp Ser Ser Asp
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<210> 28

<211> 24

<212> PRT

<213> Influenza A virus

<400> 28

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Ala Asn Asp Ser Ser Asp
20

<210> 29

<211> 24

<212> PRT

<213> Influenza A virus

<400> 29

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Ala Arg Cys Asn Asp Ser Ser Asp
20

<210> 30

<211> 24

<212> PRT

<213> Influenza A virus

<400> 30

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Ser Asn Asp Ser Ser Asp
20

<210> 31

<211> 24

<212> PRT

<213> Influenza A virus

<400> 31

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Ser Arg Cys Asn Asp Ser Ser Asp
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<210> 32

<211> 24

<212> PRT

<213> Hepatitis B virus

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<221> MISC_FEATURE

<222> (1)..(1)

<223> Xaa at position 1 is methionine or absent. If methionine then Xa
a in positions 2 through 8 are not absent

<220>

<221> MISC_FEATURE

<222> (2)..(2)

<223> Xaa at position 2 is serine or absent. If serine then Xaa in pos
itions 3 through 8 are not absent.

<220>

<221> MISC_FEATURE

<222> (3)..(3)

<223> Xaa at position 3 is leucine or absent. If leucine then Xaa in p
ositions 4 through 8 are not absent.

<220>

<221> MISC_FEATURE

<222> (4)..(4)

<223> Xaa at position 4 is leucine or absent. If leucine then Xaa in p
ositions 5 through 8 are not absent.

<220>

<221> MISC_FEATURE

<222> (5)..(5)

<223> Xaa at position 5 is threonine or absent. If threonine than Xaa
in positions 6 through 8 are not absent.

<220>

<221> MISC_FEATURE

<222> (6)..(6)

<223> Xaa at position 6 is glutamic acid or absent. If glutamic acid t hen Xaa in positions 7 through 8 are not absent.

<220>

<221> MISC_FEATURE

<222> (7)..(7)

<223> Xaa at position 7 is valine or absent. If valine then Xaa in pos ition 8 is not absent.

<220>

<221> MISC_FEATURE

<222> (8)..(8)

<223> Xaa at position 8 is glutamic acid or absent.

<220>

<221> MISC_FEATURE

<222> (15)..(15)

<223> Xaa at position 15 is tryptophan or absent.

<220>

<221> MISC_FEATURE

<222> (16)..(16)

<223> Xaa at position 16 is glycine or absent. If glycine then Xaa in position 15 is not absent.

<220>

<221> MISC_FEATURE

<222> (17)..(17)

<223> Xaa at position 17 is absent or present, if present Xaa in positi on 17 is cysteine, serine or alanine. If Xaa in position 17 is p

resent then positions 15 through 16 are not absent.

<220>

<221> MISC_FEATURE

<222> (18)..(18)

<223> Xaa at position 18 is arginine or absent. If arginine then Xaa i n positions 15 through 17 are not absent.

<220>

<221> MISC_FEATURE

<222> (19)..(19)

<223> Xaa at position 19 is absent or present, if present Xaa in positi on 19 is cysteine, serine or alanine. If Xaa in position 19 is p resent then positions 15 through 18 are not absent.

<220>

<221> MISC_FEATURE

<222> (20)..(20)

<223> Xaa at position 20 is asparagine or absent. If asparagine then X aa in positions 15 through 19 are not absent.

<220>

<221> MISC_FEATURE

<222> (21)..(21)

<223> Xaa at position 21 is aspartic acid or absent. If aspartic acid then Xaa in positions 15 through 20 are not absent.

<220>

<221> MISC_FEATURE

<222> (22)..(22)

<223> Xaa at position 22 is serine or absent. If serine then Xaa in po sitions 15 through 21 are not absent.

<220>

<221> MISC_FEATURE

<222> (23)..(23)

<223> Xaa at position 23 is serine or absent. If serine then Xaa in positions 15 through 22 are not absent.

<220>

<221> MISC_FEATURE

<222> (24)..(24)

<223> Xaa at position 24 is aspartic acid or absent. If aspartic acid then Xaa in positions 15 through 23 are not absent.

<400> 32

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1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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<210> 33

<211> 142

<212> PRT

<213> Yersinia pestis

<400> 33

Asp Ile Leu Lys Val Ile Val Asp Ser Met Asn His His Gly Asp Ala
1 5 10 15

Arg Ser Lys Leu Arg Glu Glu Leu Ala Glu Leu Thr Ala Glu Leu Lys
20 25 30

Ile Tyr Ser Val Ile Gln Ala Glu Ile Asn Lys His Leu Ser Ser Ser
35 40 45

Gly Thr Ile Asn Ile His Asp Lys Ser Ile Asn Leu Met Asp Lys Asn
50 55 60

Leu Tyr Gly Tyr Thr Asp Glu Glu Ile Phe Lys Ala Ser Ala Glu Tyr

65 70 75 80

Lys Ile Leu Glu Lys Met Pro Gln Thr Thr Ile Gln Val Asp Gly Ser
85 90 95

Glu Lys Lys Ile Val Ser Ile Lys Asp Phe Leu Gly Ser Glu Asn Lys
100 105 110

Arg Thr Gly Ala Leu Gly Asn Leu Lys Asn Ser Tyr Ser Tyr Asn Lys
115 120 125

Asp Asn Asn Glu Leu Ser His Phe Ala Thr Thr Cys Ser Asp
130 135 140

<210> 34

<211> 19

<212> PRT

<213> Haemophilus influenzae

<400> 34

Cys Ser Ser Ser Asn Asn Asp Ala Ala Gly Asn Gly Ala Ala Gln Phe
1 5 10 15

Gly Gly Tyr

<210> 35

<211> 11

<212> PRT

<213> Haemophilus influenzae

<400> 35

Asn Lys Leu Gly Thr Val Ser Tyr Gly Glu Glu
1 5 10

<210> 36

<211> 16

<212> PRT

<213> Haemophilus influenzae

<400> 36

Asn Asp Glu Ala Ala Tyr Ser Lys Asn Arg Arg Ala Val Leu Ala Tyr
1 5 10 15

<210> 37

<211> 28

<212> PRT

<213> Moraxella catarrhalis

<400> 37

Leu Asp Ile Glu Lys Asp Lys Lys Lys Arg Thr Asp Glu Gln Leu Gln
1 5 10 15

Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
20 25

<210> 38

<211> 28

<212> PRT

<213> Moraxella catarrhalis

<400> 38

Leu Asp Ile Glu Lys Asn Lys Lys Lys Arg Thr Glu Ala Glu Leu Gln
1 5 10 15

Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
20 25

<210> 39

<211> 28

<212> PRT

<213> Moraxella catarrhalis

<400> 39

Ile Asp Ile Glu Lys Lys Gly Lys Ile Arg Thr Glu Ala Glu Leu Leu
1 5 10 15

Ala Glu Leu Asn Lys Asp Tyr Pro Gly Gln Gly Tyr
20 25

<210> 40

<211> 25

<212> PRT

<213> Porphyromonas gingivalis

<400> 40

Gly Val Ser Pro Lys Val Cys Lys Asp Val Thr Val Glu Gly Ser Asn
1 5 10 15

Glu Phe Ala Pro Val Gln Asn Leu Thr
20 25

<210> 41

<211> 20

<212> PRT

<213> Porphyromonas gingivalis

<400> 41

Arg Ile Gln Ser Thr Trp Arg Gln Lys Thr Val Asp Leu Pro Ala Gly
1 5 10 15

Thr Lys Tyr Val
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<210> 42

<211> 21

<212> PRT

<213> Trypanosoma cruzi

<400> 42

Lys Ala Ala Ile Ala Pro Ala Lys Ala Ala Ala Pro Ala Lys Ala
1 5 10 15

Ala Thr Ala Pro Ala
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<210> 43

<211> 16

<212> PRT

<213> Plasmodium falciparum

<400> 43

Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

<210> 44

<211> 24

<212> PRT

<213> Plasmodium falciparum

<400> 44

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Ala Asn Pro Asn Val Asp Pro
20

<210> 45

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 45

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Ala Asn Pro

20

<210> 46

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 46

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Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val Asp Pro
1               5                   10                  15

Asn Ala Asn Pro
            20
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<210> 47

<211> 28

<212> PRT

<213> Plasmodium falciparum

<400> 47

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Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro
1               5                   10                  15

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro
            20                  25
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<210> 48

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 48

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Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala
1               5                   10                  15

Asn Pro Asn Val
            20
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<210> 49

<211> 22

<212> PRT

<213> Plasmodium falciparum

<400> 49

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Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala
1               5                   10                  15

Asn Pro Asn Val Asp Pro
            20
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<210> 50

<211> 24

<212> PRT

<213> Plasmodium falciparum

<400> 50

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Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala
1               5                   10                  15

Asn Pro Asn Val Asp Pro Asn Ala
            20
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<210> 51

<211> 18

<212> PRT

<213> Plasmodium falciparum

<400> 51

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Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
1               5                   10                  15

Asn Val
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<210> 52

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 52

Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Val Asp Pro
20

<210> 53

<211> 22

<212> PRT

<213> Plasmodium falciparum

<400> 53

Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Val Asp Pro Asn Ala
20

<210> 54

<211> 16

<212> PRT

<213> Plasmodium falciparum

<400> 54

Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
1 5 10 15

<210> 55

<211> 18

<212> PRT

<213> Plasmodium falciparum

<400> 55

Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
1   5   10   15

Asp Pro

<210> 56

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 56

Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
1   5   10   15

Asp Pro Asn Ala
            20

<210> 57

<211> 19

<212> PRT

<213> Plasmodium vivax

<400> 57

Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
1   5   10   15

Pro Ala Gly

<210> 58

<211> 18

<212> PRT

<213> Plasmodium vivax

<400> 58

Arg Ala Asp Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Gly Gln Pro
1 5 10 15

Ala Gly

<210> 59

<211> 18

<212> PRT

<213> Plasmodium vivax

<400> 59

Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15

Pro Gly

<210> 60

<211> 18

<212> PRT

<213> Plasmodium vivax

<400> 60

Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
1 5 10 15

Pro Gly

<210> 61

<211> 18

<212> PRT

<213> Plasmodium vivax

<400> 61

Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln
1 5 10 15

Pro Gly

<210> 62

<211> 18

<212> PRT

<213> Plasmodium vivax

<400> 62

Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
1 5 10 15

Pro Gly

<210> 63

<211> 22

<212> PRT

<213> Plasmodium vivax

<400> 63

Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala Asn
1 5 10 15

Gln Glu Gly Gly Ala Ala
20

<210> 64

<211> 36

<212> PRT

<213> Plasmodium vivax

<400> 64

Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15

Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp
20 25 30

Asp Gln Pro Gly
35

<210> 65

<211> 16

<212> PRT

<213> Plasmodium berghei

<400> 65

Asp Pro Pro Pro Pro Asn Pro Asn Asp Pro Pro Pro Pro Asn Pro Asn
1 5 10 15

<210> 66

<211> 24

<212> PRT

<213> Plasmodium yoelii

<400> 66

Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly
1 5 10 15

Ala Pro Gln Gly Pro Gly Ala Pro
20

<210> 67

<211> 15

<212>   PRT

<213>   Streptococcus sobrinus

<400>   67

Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys
1   5   10   15

<210>   68

<211>   16

<212>   PRT

<213>   Streptococcus sobrinus

<400>   68

Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
1   5   10   15

<210>   69

<211>   9

<212>   PRT

<213>   Shigella flexneri

<400>   69

Lys Asp Arg Thr Leu Ile Glu Gln Lys
1   5

<210>   70

<211>   15

<212>   PRT

<213>   respiratory syncytial virus

<400>   70

Cys Ser Ile Cys Ser Asn Asn Pro Thr Cys Trp Ala Ile Cys Lys
1   5   10   15

<210> 71

<211> 25

<212> PRT

<213> Entamoeba histolytica

<400> 71

```
Val Glu Cys Ala Ser Thr Val Cys Gln Asn Asp Asn Ser Cys Pro Ile
1               5                   10                  15

Ile Ala Asp Val Glu Lys Cys Asn Gln
            20                  25
```

<210> 72

<211> 34

<212> PRT

<213> Schistosoma japonicum

<400> 72

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Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Gly Glu Leu Ile
1               5                   10                  15

Arg Arg Ala Lys Ser Ala Glu Ser Leu Ala Ser Glu Leu Gln Arg Arg
            20                  25                  30

Val Asp
```

<210> 73

<211> 34

<212> PRT

<213> Schistosoma mansoni

<400> 73

```
Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Ser Glu Leu Ile
1               5                   10                  15

Arg Arg Ala Lys Ala Ala Glu Ser Leu Ala Ser Asp Leu Gln Arg Arg
```

20 25 30

Val Asp

<210> 74

<211> 26

<212> PRT

<213> Bovine Inhibin

<400> 74

Ser Thr Pro Pro Leu Pro Trp Pro Trp Ser Pro Ala Ala Leu Arg Leu
1 5 10 15

Leu Gln Arg Pro Pro Glu Glu Pro Ala Ala
20 25

<210> 75

<211> 17

<212> PRT

<213> Ebola virus

<400> 75

Ala Thr Gln Val Glu Gln His His Arg Arg Thr Asp Asn Asp Ser Thr
1 5 10 15

Ala

<210> 76

<211> 17

<212> PRT

<213> Ebola virus

<400> 76

His Asn Thr Pro Val Tyr Lys Leu Asp Ile Ser Glu Ala Thr Gln Val
1 5 10 15

Glu

<210> 77

<211> 17

<212> PRT

<213> Ebola virus

<400> 77

Gly Lys Leu Gly Leu Ile Thr Asn Thr Ile Ala Gly Val Ala Val Leu
1 5 10 15

Ile

<210> 78

<211> 14

<212> PRT

<213> Escherichia coli

<400> 78

Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly Cys Asn
1 5 10

<210> 79

<211> 18

<212> PRT

<213> Escherichia coli

<400> 79

Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
1 5 10 15

Cys Asn

<210> 80

<211> 18

<212> PRT

<213> Escherichia coli

<400> 80

Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
1 5 10 15

Cys Asn

<210> 81

<211> 42

<212> PRT

<213> Alzheimer's disease b-Amyloid

<400> 81

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala
35 40

<210> 82

<211> 17

<212> PRT

<213> Alzheimer's disease b-Amyloid

<400> 82

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu

<210> 83

<211> 11

<212> PRT

<213> Alzheimer's disease b-Amyloid

<400> 83

Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
1 5 10

<210> 84

<211> 33

<212> PRT

<213> Alzheimer's disease b-Amyloid

<400> 84

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30

Gly

<210> 85

<211> 13

<212> PRT

<213> Neisseria meningitidis

<400> 85

Tyr Val Ala Val Glu Asn Gly Val Ala Lys Lys Val Ala
1 5 10

<210> 86

<211> 15

<212> PRT

<213> Neisseria meningitidis

<400> 86

His Phe Val Gln Gln Thr Pro Lys Ser Gln Pro Thr Leu Val Pro
1 5 10 15

<210> 87

<211> 13

<212> PRT

<213> Neisseria meningitidis

<400> 87

His Val Val Val Asn Asn Lys Val Ala Thr His Val Pro
1 5 10

<210> 88

<211> 12

<212> PRT

<213> Neisseria meningitidis

<400> 88

Pro Leu Gln Asn Ile Gln Pro Gln Val Thr Lys Arg
1 5 10

<210> 89

<211> 21

<212> PRT

<213> Neisseria meningitidis

<400> 89

Ala Gln Ala Ala Asn Gly Gly Ala Ala Ser Gly Gln Val Lys Val Thr

1 5 10 15

Lys Val Thr Lys Ala
20

<210> 90

<211> 10

<212> PRT

<213> Neisseria meningitidis

<400> 90

Tyr Val Asp Glu Gln Ser Lys Tyr His Ala
1 5 10

<210> 91

<211> 15

<212> PRT

<213> Neisseria meningitidis

<400> 91

His Phe Val Gln Asn Lys Gln Asn Gln Pro Pro Thr Leu Val Pro
1 5 10 15

<210> 92

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 92

Lys Pro Ser Ser Thr Asn Ala Lys Thr Gly Asn Lys Val Glu Val Thr
1 5 10 15

Lys Ala

<210> 93

<211> 17

<212> PRT

<213> Neisseria meningitidis

<400> 93

Tyr Trp Thr Thr Val Asn Thr Gly Ser Ala Thr Thr Thr Thr Phe Val
1 5 10 15

Pro

<210> 94

<211> 11

<212> PRT

<213> Neisseria meningitidis

<400> 94

Tyr Val Asp Glu Lys Lys Lys Met Val His Ala
1 5 10

<210> 95

<211> 13

<212> PRT

<213> Neisseria meningitidis

<400> 95

His Tyr Thr Arg Gln Asn Asn Ala Asp Val Phe Val Pro
1 5 10

<210> 96

<211> 14

<212> PRT

<213> Neisseria meningitidis

<400> 96

Tyr Tyr Thr Lys Asp Thr Asn Asn Asn Leu Thr Leu Val Pro
1 5 10

<210> 97

<211> 14

<212> PRT

<213> Neisseria meningitidis

<400> 97

Pro Pro Gln Lys Asn Gln Ser Gln Pro Val Val Thr Lys Ala
1 5 10

<210> 98

<211> 14

<212> PRT

<213> Neisseria meningitidis

<400> 98

Pro Pro Ser Lys Gly Gln Thr Gly Asn Lys Val Thr Lys Gly
1 5 10

<210> 99

<211> 14

<212> PRT

<213> Neisseria meningitidis

<400> 99

Pro Pro Ser Lys Ser Gln Pro Gln Val Lys Val Thr Lys Ala
1 5 10

<210> 100

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 100

Gln Pro Gln Thr Ala Asn Thr Gln Gln Gly Gly Lys Val Lys Val Thr
1 5 10 15

Lys Ala

<210> 101

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 101

Gln Pro Gln Val Thr Asn Gly Val Gln Gly Asn Gln Val Lys Val Thr
1 5 10 15

Lys Ala

<210> 102

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 102

Gln Pro Ser Lys Ala Gln Gly Gln Thr Asn Asn Gln Val Lys Val Thr
1 5 10 15

Lys Ala

<210> 103

<211> 20

<212> PRT

<213> Neisseria meningitidis

<400> 103

Pro Pro Ser Ser Asn Gln Gly Lys Asn Gln Ala Gln Thr Gly Asn Thr
1 5 10 15

Val Thr Lys Ala
20

<210> 104

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 104

Pro Pro Ser Lys Ser Gln Gly Lys Thr Gly Asn Gln Val Lys Val Thr
1 5 10 15

Lys Ala

<210> 105

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 105

Pro Pro Ser Lys Ser Gln Gly Thr Asn Asn Asn Gln Val Lys Val Thr
1 5 10 15

Lys Ala

<210> 106

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 106

Pro Pro Ser Lys Ser Gln Pro Gly Gln Val Lys Val Thr Lys Val Thr
1   5   10   15

Lys Ala

<210> 107

<211> 24

<212> PRT

<213> Neisseria meningitidis

<400> 107

Gln Leu Gln Leu Thr Glu Gln Pro Ser Ser Thr Asn Gly Gln Thr Gly
1   5   10   15

Asn Gln Val Lys Val Thr Lys Ala
            20

<210> 108

<211> 24

<212> PRT

<213> Neisseria meningitidis

<400> 108

Gln Leu Gln Leu Thr Glu Ala Pro Ser Lys Ser Gln Gly Ala Ala Ser
1   5   10   15

Asn Gln Val Lys Val Thr Lys Ala
            20

<210> 109

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 109

Ser Ala Tyr Thr Pro Ala His Val Tyr Val Asp Asn Lys Val Ala Lys
1 5 10 15

His Val Ala

<210> 110

<211> 21

<212> PRT

<213> Neisseria meningitidis

<400> 110

Ser Ala Tyr Thr Pro Ala His Phe Val Gln Asn Lys Gln Asn Asn Asn
1 5 10 15

Pro Thr Leu Val Pro
20

<210> 111

<211> 12

<212> PRT

<213> Neisseria meningitidis

<400> 111

Val Glu Gly Arg Asn Tyr Gln Leu Gln Leu Thr Glu
1 5 10

<210> 112

<211> 12

<212> PRT

<213> Neisseria meningitidis

<400> 112

Pro Ala Gln Asn Ser Lys Ser Ala Tyr Thr Pro Ala

1 5 10

<210> 113

<211> 22

<212> PRT

<213> Neisseria meningitidis

<400> 113

Gln Leu Gln Leu Thr Glu Pro Pro Ser Lys Asn Gln Ala Gln Thr Gln
1 5 10 15

Asn Lys Val Thr Lys Ala
20

<210> 114

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 114

Gly Arg Asp Ala Phe Glu Leu Phe Leu Leu Gly Ser Gly Ser Asp Glu
1 5 10 15

<210> 115

<211> 31

<212> PRT

<213> Neisseria meningitidis

<400> 115

Arg His Ala Asn Val Gly Arg Asp Ala Phe Glu Leu Phe Leu Leu Gly
1 5 10 15

Ser Gly Ser Asp Glu Ala Lys Gly Thr Asp Pro Leu Lys Asn His
20 25 30

<210> 116

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 116

Gly Arg Asp Ala Phe Asn Leu Phe Leu Leu Gly Arg Ile Gly Asp Asp
1 5 10 15

Asp Glu

<210> 117

<211> 17

<212> PRT

<213> Neisseria meningitidis

<400> 117

Gly Arg Asn Ala Phe Glu Leu Phe Leu Ile Gly Ser Ala Thr Ser Asp
1 5 10 15

Gln

<210> 118

<211> 15

<212> PRT

<213> Neisseria meningitidis

<400> 118

Gln Val Lys Val Thr Lys Ala Lys Ser Arg Ile Arg Thr Lys Ile
1 5 10 15

<210> 119

<211> 13

<212> PRT

<213> Neisseria meningitidis

<400> 119

Thr Leu Val Pro Ala Val Val Gly Lys Pro Gly Ser Asp
1 5 10

<210> 120

<211> 17

<212> PRT

<213> Neisseria meningitidis

<400> 120

His Ala Lys Ala Ser Ser Ser Leu Gly Ser Ala Lys Gly Phe Ser Pro
1 5 10 15

Arg

<210> 121

<211> 15

<212> PRT

<213> Neisseria meningitidis

<400> 121

Thr Arg Tyr Lys Asn Tyr Lys Ala Pro Ser Thr Asp Phe Lys Leu
1 5 10 15

<210> 122

<211> 18

<212> PRT

<213> Neisseria meningitidis

<400> 122

Ser Leu Asn Arg Ala Ser Val Asp Leu Gly Gly Ser Asp Ser Phe Ser
1 5 10 15

Gln Thr

<210> 123

<211> 21

<212> PRT

<213> Neisseria meningitidis

<400> 123

Gly Lys Val Asn Thr Val Lys Asn Val Arg Ser Gly Glu Leu Ser Ala
1 5 10 15

Gly Val Arg Val Lys
20

<210> 124

<211> 21

<212> PRT

<213> Neisseria meningitidis

<400> 124

Gly Lys Val Asn Thr Val Lys Asn Val Arg Ser Gly Glu Leu Ser Val
1 5 10 15

Gly Val Arg Val Lys
20

<210> 125

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> linker peptide

<400> 125

Gly Ser Gly Asp Gly Glu Gly Gly
1 5

<210> 126

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> flexible linker arm

<400> 126

Gly Gly Gly Gly Ser Gly Gly Gly Gly Thr
1 5 10

<210> 127

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Flexible linker arm sequence

<400> 127

Gly Gly Gly Gly Ser Gly Gly Gly Gly
1 5

<210> 128

<211> 16

<212> PRT

<213> HIV

<400> 128

Gly Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Cys
1 5 10 15

<210> 129

<211> 17

<212> PRT

<213> Corynebacterium diphtheriae

<400> 129

Phe Gln Val Val His Asn Ser Tyr Asn Arg Pro Ala Tyr Ser Pro Gly
1 5 10 15

Cys

<210> 130

<211> 25

<212> PRT

<213> Borrelia burgdorferi

<400> 130

Val Glu Ile Lys Glu Gly Thr Val Thr Leu Lys Arg Glu Ile Asp Lys
1 5 10 15

Asn Gly Lys Val Thr Val Ser Leu Cys
20 25

<210> 131

<211> 19

<212> PRT

<213> Borrelia burgdorferi

<400> 131

Thr Leu Ser Lys Asn Ile Ser Lys Ser Gly Glu Val Ser Val Glu Leu
1 5 10 15

Asn Asp Cys

<210> 132

<211> 11

<212> PRT

<213> Influenza A virus

<400> 132

Ser Ser Val Ser Ser Phe Glu Arg Phe Glu Cys
1 5 10

<210> 133

<211> 10

<212> PRT

<213> Influenza A virus

<400> 133

Leu Ile Asp Ala Leu Leu Gly Asp Pro Cys
1 5 10

<210> 134

<211> 9

<212> PRT

<213> Influenza A virus

<400> 134

Thr Leu Ile Asp Ala Leu Leu Gly Cys
1 5

<210> 135

<211> 21

<212> PRT

<213> Trypanosoma cruzi

<400> 135

Ser His Asn Phe Thr Leu Val Ala Ser Val Ile Ile Glu Glu Ala Pro

1 5 10 15

Ser Gly Asn Thr Cys
20

<210> 136

<211> 16

<212> PRT

<213> Plasmodium falciparum

<400> 136

Ser Val Gln Ile Pro Lys Val Pro Tyr Pro Asn Gly Ile Val Tyr Cys
1 5 10 15

<210> 137

<211> 16

<212> PRT

<213> Plasmodium falciparum

<400> 137

Asp Phe Asn His Tyr Tyr Thr Leu Lys Thr Gly Leu Glu Ala Asp Cys
1 5 10 15

<210> 138

<211> 18

<212> PRT

<213> Plasmodium falciparum

<400> 138

Pro Ser Asp Lys His Ile Glu Gln Tyr Lys Lys Ile Lys Asn Ser Ile
1 5 10 15

Ser Cys

<210> 139

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 139

Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
1   5   10   15

Cys Ser Val Thr
            20

<210> 140

<211> 19

<212> PRT

<213> Plasmodium vivax

<400> 140

Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys
1   5   10   15

Ser Val Thr

<210> 141

<211> 20

<212> PRT

<213> Plasmodium yoelii

<400> 141

Glu Phe Val Lys Gln Ile Ser Ser Gln Leu Thr Glu Glu Trp Ser Gln
1   5   10   15

Cys Ser Val Thr
            20

<210> 142

<211> 16

<212> PRT

<213> Streptococcus sobrinus

<400> 142

Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys Cys
1 5 10 15

<210> 143

<211> 17

<212> PRT

<213> Streptococcus sobrinus

<400> 143

Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
1 5 10 15

Cys

<210> 144

<211> 16

<212> PRT

<213> Lymphocytic choriomeningitis virus

<400> 144

Arg Pro Gln Ala Ser Gly Val Tyr Met Gly Asn Leu Thr Ala Gln Cys
1 5 10 15

<210> 145

<211> 16

<212> PRT

<213> Clostridium tetani

<400> 145

Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Cys
1 5 10 15

<210> 146

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 146

Ala Ile Trp Gln Val Glu Gln Lys Ala Ser Ile Ala Gly Thr Asp Ser
1 5 10 15

Gly Trp Cys

<210> 147

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 147

Asn Tyr Lys Asn Gly Gly Phe Phe Val Gln Tyr Gly Gly Ala Tyr Lys
1 5 10 15

Arg His Cys

<210> 148

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 148

His Asn Ser Gln Thr Glu Val Ala Ala Thr Leu Ala Tyr Arg Phe Gly
1 5 10 15

Asn Val Cys

<210> 149

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 149

Thr Pro Arg Val Ser Tyr Ala His Gly Phe Lys Gly Leu Val Asp Asp
1 5 10 15

Ala Asp Cys

<210> 150

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 150

Arg Phe Gly Asn Ala Val Pro Arg Ile Ser Tyr Ala His Gly Phe Asp
1 5 10 15

Phe Ile Cys

<210> 151

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 151

Ala Phe Lys Tyr Ala Arg His Ala Asn Val Gly Arg Asn Ala Phe Glu
1 5 10 15

Leu Phe Cys

<210> 152

<211> 20

<212> PRT

<213> Neisseria meningitidis

<400> 152

Ser Gly Ala Trp Leu Lys Arg Asn Thr Gly Ile Gly Asn Tyr Thr Gln
1 5 10 15

Ile Asn Ala Cys
20

<210> 153

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 153

Ala Gly Glu Phe Gly Thr Leu Arg Ala Gly Arg Val Ala Asn Gln Cys
1 5 10 15

<210> 154

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 154

Ile Gly Asn Tyr Thr Gln Ile Asn Ala Ala Ser Val Gly Leu Arg Cys
1 5 10 15

<210> 155

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 155

Gly Arg Asn Tyr Gln Leu Gln Leu Thr Glu Gln Pro Ser Arg Thr Cys
1 5 10 15

<210> 156

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 156

Ser Gly Ser Val Gln Phe Val Pro Ala Gln Asn Ser Lys Ser Ala Cys
1 5 10 15

<210> 157

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 157

His Ala Asn Val Gly Arg Asp Ala Phe Asn Leu Phe Leu Leu Gly Cys
1 5 10 15

<210> 158

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 158

Leu Gly Arg Ile Gly Asp Asp Asp Glu Ala Lys Gly Thr Asp Pro Cys
1 5 10 15

<210> 159

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 159

Ser Val Gln Phe Val Pro Ala Gln Asn Ser Lys Ser Ala Tyr Lys Cys
1 5 10 15

<210> 160

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 160

Asn Tyr Ala Phe Lys Tyr Ala Lys His Ala Asn Val Gly Arg Asp Cys
1 5 10 15

<210> 161

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 161

Ala His Gly Phe Asp Phe Ile Glu Arg Gly Lys Lys Gly Glu Asn Cys
1 5 10 15

<210> 162

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 162

Gly Val Asp Tyr Asp Phe Ser Lys Arg Thr Ser Ala Ile Val Ser Cys
1 5 10 15

<210> 163

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 163

His Asp Asp Met Pro Val Ser Val Arg Tyr Asp Ser Pro Asp Phe Cys
1 5 10 15

<210> 164

<211> 27

<212> PRT

<213> Neisseria meningitidis

<400> 164

Arg Phe Gly Asn Ala Val Pro Arg Ile Ser Tyr Ala His Gly Phe Asp
1 5 10 15

Phe Ile Glu Arg Gly Lys Lys Gly Glu Asn Cys
20 25

<210> 165

<211> 24

<212> PRT

<213> Neisseria meningitidis

<400> 165

Asn Tyr Ala Phe Lys Tyr Ala Lys His Ala Asn Val Gly Arg Asp Ala
1 5 10 15

Phe Asn Leu Phe Leu Leu Gly Cys
20

<210> 166

<211> 26

<212> PRT

<213> Neisseria meningitidis

<400> 166

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Ser Gly Ala Trp Leu Lys Arg Asn Thr Gly Ile Gly Asn Tyr Thr Gln
1               5                   10                  15

Ile Asn Ala Ala Ser Val Gly Leu Arg Cys
            20                  25
```

<210> 167

<211> 20

<212> PRT

<213> Neisseria meningitidis

<400> 167

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Ser Gly Ser Val Gln Phe Val Pro Ala Gln Asn Ser Lys Ser Ala Tyr
1               5                   10                  15

Thr Pro Ala Cys
            20
```

<210> 168

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 168

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Thr Gly Ala Asn Asn Thr Ser Thr Val Ser Asp Tyr Phe Arg Asn Arg
1               5                   10                  15

Ile Thr Cys
```

<210> 169

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 169

Ile Tyr Asp Phe Lys Leu Asn Asp Lys Phe Asp Lys Phe Lys Pro Tyr
1 5 10 15

Ile Gly Cys

<210> 170

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 170

Leu Ser Ala Ile Tyr Asp Phe Lys Leu Asn Asp Lys Phe Lys Pro Tyr
1 5 10 15

Ile Gly Cys

<210> 171

<211> 19

<212> PRT

<213> Neisseria meningitidis

<400> 171

Asn Gly Trp Tyr Ile Asn Pro Trp Ser Glu Val Lys Phe Asp Leu Asn
1 5 10 15

Ser Arg Cys

<210> 172

<211> 549

<212>   DNA

<213>   Hepatitis B virus

<400>   172
atggacatcg accettataa agaatttgga gctactgtgg agttactctc gtttttgcct   60

tctgacttct ttccttcagt acgagatctt ctagataccg cctcagctct gtatcgggaa   120

gccttagagt ctcctgagca ttgttcacct caccatactg cactcaggca agcaattctt   180

tgctgggggg aactaatgac tctagctacc tgggtgggtg ttaatttgga agatccagcg   240

tctagagacc tagtagtcag ttatgtcaac actaatatgg gcctaaagtt caggcaactc   300

ttgtggtttc acatttcttg tctcactttt ggaagagaaa cagttataga gtatttggtg   360

tctttcggag tgtggattcg cactcctcca gcttatagac caccaaatgc ccctatccta   420

tcaacacttc cggagactac tgttgttaga cgacgaggca ggtcccctag aagaagaact   480

ccctcgcctc gcagacgaag gtctcaatcg ccgcgtcgca gaagatctca atctcgggaa   540

tctcaatgt   549

<210>   173

<211>   555

<212>   DNA

<213>   Hepatitis B virus

<400>   173
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tctgacttct ttccttccgt acgagatctc ctagacaccg cctcagctct gtatcgagaa   120

gccttagagt ctcctgagca ttgctcacct caccatactg cactcaggca agccattctc   180

tgctgggggg aattgatgac tctagctacc tgggtgggta ataatttgca agatccagca   240

tccagagatc tagtagtcaa ttatgttaat actaacatgg gtttaaagat caggcaacta   300

ttgtggtttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttggtc   360

tctttcggag tgtggattcg cactcctcca gcctatagac caccaaatgc ccctatctta   420

tcaacacttc cggaaactac tgttgttaga cgacgggacc gaggcaggtc ccctagaaga   480

agaactccct cgcctcgcag acgcagatct caatcgccgc gtcgcagaag atctcaatct   540

cgggaatctc aatgt   555

<210> 174

<211> 555

<212> DNA

<213> Hepatitis B virus

<400> 174
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gccttagagt ctcctgagca ttgctcacct caccatactg cactcaggca agccattctc 180

tgctgggggg aattgatgac tctagctacc tgggtgggta ataatttgga agatccagca 240

tctagggatc ttgtagtaaa ttatgttaat actaacgtgg gtttaaagat caggcaacta 300

ttgtggtttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttggtc 360

tctttcggag tgtggattcg cactcctcca gcctatagac caccaaatgc ccctatctta 420

tcaacacttc cggaaactac tgttgttaga cgacgggacc gaggcaggtc ccctagaaga 480

agaactccct cgcctcgcag acgcagatct ccatcgccgc gtcgcagaag atctcaatct 540

cgggaatctc aatgt 555

<210> 175

<211> 549

<212> DNA

<213> Hepatitis B virus

<400> 175
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gccttagagt ctcctgagca ttgttcacct caccatactg cactcaggca agcaattctt 180

tgctggggag acttaatgac tctagctacc tgggtgggta ctaatttaga agatccagca 240

tctagggacc tagtagtcag ttatgtcaac actaatgtgg gcctaaagtt cagacaatta 300

ttgtggtttc acatttcttg tctcactttt ggaagagaaa cggttctaga gtatttggtg 360

tcttttggag tgtggattcg cactcctcca gcttatagac caccaaatgc ccctatccta 420

tcaacgcttc cggagactac tgttgttaga cgacgaggca ggtcccctag aagaagaact 480

ccctcgcctc gcagacgaag atctcaatcg ccgcgtcgca gaagatctca atctcgggaa 540

tctcaatgt 549

<210> 176

<211> 549

<212> DNA

<213> Marmota monax

<400> 176
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cttgtatgaa gaagaactaa caggtaggga acattgctct ccgcaccata cagctattag 180

acaagcttta gtatgctggg atgaattaac taaattgata gcttggatga gctctaacat 240

aacttctgaa caagtaagaa caatcattgt aaatcatgtc aatgatacct ggggacttaa 300

ggtgagacaa agtttatggt ttcatttgtc atgtctcact ttcggacaac atacagttca 360

agaattttta gtaagttttg gagtatggat caggactcca gctccatata gacctcctaa 420

tgcacccatt ctctcgactc ttccggaaca tacagtcatt aggagaagag gaggtgcaag 480

agcttctagg tcccccagaa gacgcactcc ctctcctcgc aggagaagat ctcaatcacc 540

gcgtcgcag 549

<210> 177

<211> 651

<212> DNA

<213> Spermophilus variegatus

<400> 177
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tcttcttatc agttgttgaa ttttcttcct ttggactttt ttcctgatct caatgcattg 180

gtggacactg ctgctgctct ttatgaagaa gaattaacag gtagggagca ttgttctcct 240

catcatactg ctattagaca ggccttagtg tgttgggaag aattaactag attaattaca 300

tggatgagtg aaaatacaac agaagaagtt agaagaatta ttgttgatca tgtcaataat 360

acttggggac ttaaagtaag acagacttta tggtttcatt tatcatgtct tacttttgga 420

caacacacag ttcaagaatt tttggttagt tttggagtat ggattagaac tccagctcct 480

tatagaccac ctaatgcacc cattttatca actcttccgg aacatacagt cattaggaga 540

agaggaggtt caagagctgc taggtccccc cgaagacgca ctccctctcc tcgcaggaga 600

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<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> plasmis pkk223

<400> 178

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1 5 10 15

Thr Gly

<210> 179

<211> 55

<212> DNA

<213> Artificial Sequence

<220>

<223> plasmid pkk223

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<210> 180

<211> 24

<212> DNA

<213> Hepatitis B virus

<400> 180

ttgggccatg gacatcgacc ctta 24

<210> 181

<211> 29

<212> DNA

<213> Hepatitis B virus

<400> 181
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<210> 182

<211> 38

<212> DNA

<213> Hepatitis B virus

<400> 182
cgcgaattca aaaagagctc gatccagcgt ctagagac 38

<210> 183

<211> 31

<212> DNA

<213> Hepatitis B virus

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<210> 184

<211> 31

<212> DNA

<213> Hepatitis B virus

<400> 184
gcggaattcc atcttccaaa ttaacaccca c 31

<210> 185

<211> 39

<212> DNA

<213> Hepatitis B virus

<400> 185
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<210> 186

<211> 12

<212> PRT

<213> Hepatitis B virus

<400> 186

Met Gly Cys Glu Leu Asp Pro Tyr Lys Glu Phe Gly
1   5   10

<210> 187

<211> 40

<212> DNA

<213> Hepatitis B virus

<400> 187
gcgccatggg gtgtgagctc gacccttata aagaatttgg   40

<210> 188

<211> 12

<212> PRT

<213> Hepatitis B virus

<400> 188

Met Gly Cys Asp Ile Asp Pro Tyr Lys Glu Phe Gly
1   5   10

<210> 189

<211> 40

<212> DNA

<213> Hepatitis B virus

<400> 189
gcgccatggg gtgtgacatc gacccttata aagaatttgg 40

<210> 190

<211> 42

<212> DNA

<213> Hepatitis B virus

<400> 190
cgcaagctta gagctcttga attccaacaa cagtagtctc cg 42

<210> 191

<211> 28

<212> DNA

<213> Hepatitis B virus

<400> 191
cgcgagctcc cagcgtctag agacctag 28

<210> 192

<211> 17

<212> DNA

<213> Hepatitis B virus

<400> 192
gtatcaggct gaaaatc 17

<210> 193

<211> 19

<212> PRT

<213> Plasmodium falciparum

<400> 193

Ile Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
1   5   10   15

Pro Glu Leu

<210> 194

<211> 57

<212> DNA

<213> Plasmodium falciparum

<400> 194
aattaacgct aatccgaacg ctaatccgaa cgctaatccg aacgctaatc cggagct   57

<210> 195

<211> 49

<212> DNA

<213> Plasmodium falciparum

<400> 195
ccggattagc gttcggatta gcgttcggat tagcgttcgg attagcgtt   49

<210> 196

<211> 31

<212> PRT

<213> Plasmodium falciparum

<400> 196

Ile Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn
1   5   10   15

Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
            20   25   30

<210> 197

<211> 93

<212> DNA

<213> Plasmodium falciparum

<400> 197
aattaacgct aatccgaacg ttgacccgaa cgctaatccg aacgctaatc cgaacgctaa 60

tccgaacgtt gacccgaacg ctaatccgga gct 93

<210> 198

<211> 92

<212> DNA

<213> Plasmodium falciparum

<400> 198
ggagctccgg attagcgttc gggtcaacgt tcggattagc gttcggatta gcgttcggat 60

tagcgttcgg gtccaacgtt cggattagcg tt 92

<210> 199

<211> 23

<212> PRT

<213> Plasmodium falciparum

<400> 199

Ile Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Asn Ala Asn Pro Glu Leu
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<210> 200

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 200
aattaacgcg aatccgaacg tggatccgaa tgccaaccct aacgccaacc caaatgcgaa 60

cccagagct 69

<210> 201

<211> 61

<212> DNA

<213> Plasmodium falciparum

<400> 201
ctgggttcgc atttgggttg gcgttagggt tggcattcgg atccacgttc ggattcgcgt 60

t 61

<210> 202

<211> 23

<212> PRT

<213> Plasmodium falciparum

<400> 202

Ile Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val Asp
1 5 10 15

Pro Asn Ala Asn Pro Glu Leu
20

<210> 203

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 203
aattaacgcg aatccgaatg ccaaccctaa cgccaaccca aacgtggatc cgaatgcgaa 60

cccagagct 69

<210> 204

<211> 61

<212> DNA

<213> Plasmodium falciparum

<400> 204
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t 61

<210> 205

<211> 31

<212> PRT

<213> Plasmodium falciparum

<400> 205

Ile Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
20 25 30

<210> 206

<211> 93

<212> DNA

<213> Plasmodium falciparum

<400> 206
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cccgaatgtt gaccccaatg ccaatccgga gct 93

<210> 207

<211> 85

<212> DNA

<213> Plasmodium falciparum

<400> 207
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ttggatccac gttcggattc gcgtt 85

<210> 208

<211> 23

<212> PRT

<213> Plasmodium falciparum

<400> 208

Ile Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Ala Asn Pro Asn Val Glu Leu
20

<210> 209

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 209
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tgttgagct 69

<210> 210

<211> 61

<212> DNA

<213> Plasmodium falciparum

<400> 210
caacattcgg gttggcgttg ggattagcgt tagggttggc atttggatcc acgttcggat 60

t 61

<210> 211

<211> 25

<212> PRT

<213> Plasmodium falciparum

<400> 211

Ile Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Ala Asn Pro Asn Val Asp Pro Glu Leu
20 25

<210> 212

<211> 75

<212> DNA

<213> Plasmodium falciparum

<400> 212
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tgttgaccct gagct 75

<210> 213

<211> 67

<212> DNA

<213> Plasmodium falciparum

<400> 213
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tcggatt 67

<210> 214

<211> 27

<212> PRT

<213> Plasmodium falciparum

<400> 214

Ile Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Ala Asn Pro Asn Val Asp Pro Asn Ala Glu Leu
20 25

<210> 215

<211> 81

<212> DNA

<213> Plasmodium falciparum

<400> 215
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tgttgaccct aatgctgagc t 81

<210> 216

<211> 73

<212> DNA

<213> Plasmodium falciparum

<400> 216
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ccacgttcgg att 73

<210> 217

<211> 21

<212> PRT

<213> Plasmodium falciparum

<400> 217

Ile Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Asn Val Glu Leu

20

<210> 218

<211> 63

<212> DNA

<213> Plasmodium falciparum

<400> 218
aattaacgtg gatccaaatg ccaaccctaa cgctaatcca aacgccaacc cgaatgttga 60

gct 63

<210> 219

<211> 55

<212> DNA

<213> Plasmodium falciparum

<400> 219
caacattcgg gttggcgttt ggattagcgt tagggttggc atttggatcc acgtt 55

<210> 220

<211> 23

<212> PRT

<213> Plasmodium falciparum

<400> 220

Ile Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Asn Val Asp Pro Glu Leu
20

<210> 221

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 221
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ccctgagct 69

<210> 222

<211> 61

<212> DNA

<213> Plasmodium falciparum

<400> 222
cagggtcaac attcgggttg gcgtttggat tagcgttagg gttggcattt ggatccacgt 60

t 61

<210> 223

<211> 25

<212> PRT

<213> Plasmodium falciparum

<400> 223

Ile Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Asn Val Asp Pro Asn Ala Glu Leu
20 25

<210> 224

<211> 75

<212> DNA

<213> Plasmodium falciparum

<400> 224
aattaacgtg gatccaaatg ccaaccctaa cgctaatcca aacgccaacc cgaatgttga 60

ccctaatgct gagct 75

<210> 225

<211> 67

<212> DNA

<213> Plasmodium falciparum

<400> 225
cagcattagg gtcaacattc gggttggcgt ttggattagc gttagggttg gcatttggat 60

ccacgtt 67

<210> 226

<211> 19

<212> PRT

<213> Plasmodium falciparum

<400> 226

Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Glu Leu

<210> 227

<211> 57

<212> DNA

<213> Plasmodium falciparum

<400> 227
aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aacccgaatg ttgagct 57

<210> 228

<211> 49

<212> DNA

<213> Plasmodium falciparum

<400> 228

caacattcgg gttggcgttt ggattagcgt tagggttggc atttggatc 49

<210> 229

<211> 21

<212> PRT

<213> Plasmodium falciparum

<400> 229

Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Asp Pro Glu Leu
20

<210> 230

<211> 63

<212> DNA

<213> Plasmodium falciparum

<400> 230
aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aacccgaatg ttgaccctga 60

gct 63

<210> 231

<211> 55

<212> DNA

<213> Plasmodium falciparum

<400> 231
cagggtcaac attcgggttg gcgtttggat tagcgttagg gttggcattt ggatc 55

<210> 232

<211> 23

<212> PRT

<213> Plasmodium falciparum

<400> 232

Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Asp Pro Asn Ala Glu Leu
20

<210> 233

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 233
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tgccgagct 69

<210> 234

<211> 61

<212> DNA

<213> Plasmodium falciparum

<400> 234
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c 61

<210> 235

<211> 21

<212> PRT

<213> Plasmodium falciparum

<400> 235

Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser
1 5 10 15

Pro Cys Ser Val Thr

20

<210> 236

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 236
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tacctagta 69

<210> 237

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 237
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cagatattc 69

<210> 238

<211> 24

<212> PRT

<213> Plasmodium vivax

<400> 238

Ile Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala
1 5 10 15

Ala Gly Gln Pro Ala Gly Glu Leu
20

<210> 239

<211> 72

<212> DNA

<213> Plasmodium vivax

<400> 239
aattccggct ggtgaccgtg cagatggcca gccagcgggt gaccgcgctg caggccagcc 60

ggctggcgag ct 72

<210> 240

<211> 64

<212> DNA

<213> Plasmodium vivax

<400> 240
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ccgg 64

<210> 241

<211> 21

<212> PRT

<213> Plasmodium vivax

<400> 241

Ile Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
1 5 10 15

Pro Ala Gly Glu Leu
20

<210> 242

<211> 63

<212> DNA

<213> Plasmodium vivax

<400> 242
aattgacaga gcagccggac aaccagcagg cgatcgagca gacggacagc ccgcagggga 60

gct 63

<210> 243

<211> 55

<212> DNA

<213> Plasmodium vivax

<400> 243
cccctgcggg ctgtccgtct gctcgatcgc ctgctggttg tccggctgct ctgtc 55

<210> 244

<211> 21

<212> PRT

<213> Plasmodium vivax

<400> 244

Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp
1 5 10 15

Gln Pro Gly Glu Leu
20

<210> 245

<211> 63

<212> DNA

<213> Plasmodium vivax

<400> 245
aattgcgaac ggcgccggta atcagccggg ggcaaacggc gcgggtgatc aaccagggga 60

gct 63

<210> 246

<211> 55

<212> DNA

<213> Plasmodium vivax

<400> 246
cccctggttg atcacccgcg ccgtttgccc ccggctgatt accggcgccg ttcgc 55

<210> 247

<211> 21

<212> PRT

<213> Plasmodium vivax

<400> 247

Ile Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp
1 5 10 15

Gln Pro Gly Glu Leu
20

<210> 248

<211> 63

<212> DNA

<213> Plasmodium vivax

<400> 248
aattgcgaac ggcgccgata tcagccgggg tgcaaacggg gcggatgacc aaccaggcga 60

gct 63

<210> 249

<211> 55

<212> DNA

<213> Plasmodium vivax

<400> 249
cgcctggttg gtcatccgcc ccgtttgcac ccggctgatt atcggcgccg ttcgc 55

<210> 250

<211> 39

<212> PRT

<213> Plasmodium vivax

<400> 250

Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp
1 5 10 15

Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala
20 25 30

Asp Asp Gln Pro Gly Glu Leu
35

<210> 251

<211> 117

<212> DNA

<213> Plasmodium vivax

<400> 251
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caatggtgca gacaaccagc ctggggcgaa tggagccgat gaccaacccg gcgagct 117

<210> 252

<211> 109

<212> DNA

<213> Plasmodium vivax

<400> 252
cgccgggttg gtcatcggct ccattcgccc caggctggtt gtctgcacca ttggcgcctg 60

gttgatcccc cgcgccgttt gctcccggct gattaccggc gccgttcgc 109

<210> 253

<211> 25

<212> PRT

<213> Plasmodium vivax

<400> 253

Ile Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala
1 5 10 15

Asn Gln Glu Gly Gly Ala Ala Glu Leu
20 25

<210> 254

<211> 75

<212> DNA

<213> Plasmodium vivax

<400> 254
aattgcgccg ggcgccaacc aggaaggtgg ggctgcagcg ccaggagcca atcaagaagg 60

cggtgcagcg gagct 75

<210> 255

<211> 67

<212> DNA

<213> Plasmodium vivax

<400> 255
ccgctgcacc gccttcttga ttggctcctg gcgctgcagc cccaccttcc tggttggcgc 60

ccggcgc 67

<210> 256

<211> 24

<212> PRT

<213> Hepatitis B virus

<400> 256

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Cys Asn Asp Ser Ser Asp
20

<210> 257

<211> 27

<212> PRT

<213> Hepatitis B virus

<400> 257

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Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp
1               5                   10                  15

Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu
            20                  25
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<210> 258

<211> 27

<212> PRT

<213> Hepatitis B virus

<400> 258

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Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp
1               5                   10                  15

Gly Ala Arg Ala Asn Asp Ser Ser Asp Glu Leu
            20                  25
```

<210> 259

<211> 35

<212> PRT

<213> Hepatitis B virus

<400> 259

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Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1               5                   10                  15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
            20                  25                  30

Trp Gly Ile
```

35

<210> 260

<211> 34

<212> PRT

<213> Hepatitis B virus

<400> 260

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Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1               5                   10                  15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
            20                  25                  30

Trp Gly
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<210> 261

<211> 18

<212> PRT

<213> Influenza A virus

<400> 261

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Met Gly Ser Arg Cys Asn Asp Ser Ser Asp Ile Asp Pro Tyr Lys Glu
1               5                   10                  15

Phe Gly
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<210> 262

<211> 59

<212> DNA

<213> Influenza A virus

<400> 262

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ggcgccatgg ggtctagatg taacgattca agtgacatcg acccttataa agaatttcg      59
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<210> 263

<211> 16

<212> PRT

<213> Influenza A virus

<400> 263

Met Gly Cys Asn Asp Ser Ser Asp Ile Asp Pro Tyr Lys Glu Phe Gly
1 5 10 15

<210> 264

<211> 52

<212> DNA

<213> Influenza A virus

<400> 264
gcgccatggg gtgtaacgat tcaagtgaca tcgaccctta taaagaattt gg 52

<210> 265

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> xxx

<400> 265

Glu Leu Leu Gly Trp Leu Trp Gly Ile Asp Ile
1 5 10

<210> 266

<211> 14

<212> PRT

<213> Hepatitis B virus

<400> 266

Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile Asp
1 5 10

<210> 267

<211> 27

<212> PRT

<213> Hepatitis B virus

<400> 267

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Asp
20 25

<210> 268

<211> 24

<212> PRT

<213> Hepatitis B virus

<400> 268

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Cys Asn Asp Ser Ser Asp
20

<210> 269

<211> 27

<212> PRT

<213> Hepatitis B virus

<400> 269

Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Ser Arg Ser Asn Asp Ser Ser Asp Glu Leu Asp
20 25

<210> 270

<211> 38

<212> PRT

<213> Hepatitis B virus

<400> 270

Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1 5 10 15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
20 25 30

Trp Gly Ile Asp Ile Asp
35

<210> 271

<211> 17

<212> PRT

<213> Influenza B virus

<400> 271

Asn Asn Ala Thr Phe Asn Tyr Thr Asn Val Asn Pro Ile Ser His Ile
1 5 10 15

Arg

<210> 272

<211> 13

<212> PRT

<213> Homo sapiens

<400> 272

Ala Pro Glu Trp Pro Gly Ser Arg Asp Lys Arg Thr Leu

1 5 10

<210> 273

<211> 9

<212> PRT

<213> Homo sapiens

<400> 273

Glu Asp Gly Gln Val Met Asp Val Asp
1 5

<210> 274

<211> 8

<212> PRT

<213> Homo sapiens

<400> 274

Ser Thr Thr Gln Glu Gly Glu Leu
1 5

<210> 275

<211> 10

<212> PRT

<213> Homo sapiens

<400> 275

Gly His Thr Phe Glu Asp Ser Thr Lys Lys
1 5 10

<210> 276

<211> 8

<212> PRT

<213> Homo sapiens

<400> 276

Gly Gly Gly His Phe Pro Pro Thr
1 5

<210> 277

<211> 6

<212> PRT

<213> Homo sapiens

<400> 277

Pro Gly Thr Ile Asn Ile
1 5

<210> 278

<211> 5

<212> PRT

<213> Homo sapiens

<400> 278

Phe Thr Pro Pro Thr
1 5

<210> 279

<211> 8

<212> PRT

<213> Homo sapiens

<400> 279

Ile Asn His Arg Gly Tyr Trp Val
1 5

<210> 280

<211> 17

<212> PRT

<213> Homo sapiens

<400> 280

Gly Glu Phe Cys Ile Asn His Arg Gly Tyr Trp Val Cys Gly Asp Pro
1 5 10 15

Ala

<210> 281

<211> 14

<212> PRT

<213> Homo sapiens

<400> 281

Met Ala Pro Glu Trp Pro Gly Ser Arg Asp Lys Arg Thr Leu
1 5 10

<210> 282

<211> 10

<212> PRT

<213> Homo sapiens

<400> 282

Met Glu Asp Gly Gln Val Met Asp Val Asp
1 5 10

<210> 283

<211> 9

<212> PRT

<213> Homo sapiens

<400> 283

Met Ser Thr Thr Gln Glu Gly Glu Leu
1 5

<210> 284

<211> 11

<212> PRT

<213> Homo sapiens

<400> 284

Met Gly His Thr Phe Glu Asp Ser Thr Lys Lys
1 5 10

<210> 285

<211> 9

<212> PRT

<213> Homo sapiens

<400> 285

Met Gly Gly Gly His Phe Pro Pro Thr
1 5

<210> 286

<211> 7

<212> PRT

<213> Homo sapiens

<400> 286

Met Pro Gly Thr Ile Asn Ile
1 5

<210> 287

<211> 6

<212> PRT

<213> Homo sapiens

<400> 287

Met Phe Thr Pro Pro Thr
1 5

<210> 288

<211> 9

<212> PRT

<213> Homo sapiens

<400> 288

Met Ile Asn His Arg Gly Tyr Trp Val
1 5

<210> 289

<211> 18

<212> PRT

<213> Homo sapiens

<400> 289

Met Gly Glu Phe Cys Ile Asn His Arg Gly Tyr Trp Val Cys Gly Asp
1 5 10 15

Pro Ala

<210> 290

<211> 42

<212> DNA

<213> Hepatitis B virus

<400> 290
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